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RE: Notice of Proposed Rule Making, 47 CFR Parts 5, 25 and 97
IB Docket No. 02-54; FCC 02-80
Response to Initial Regulatory Flexibility Analysis

Submitted electronically
July 16, 2002

Dear Sir or Madam:

The following are comments prepared by the National Remote Sensing and Space Law Center (Center) in response to the Notice of Proposed Rule Making, Mitigation of Orbital Debris, Appendix C, Initial Regulatory Flexibility Analysis, IB Docket No. 02-54, FCC 02-80:

In General

1. The Center joins the Commission in its assessment that this is an appropriate time to consider issues related to orbital debris mitigation and to begin the rule-making process. The Center also joins Commissioner Michael J. Copps in commending the FCC International Bureau for its work in preparing the *Notice of Proposed Rule Making regarding Mitigation of Orbital Debris*. The Commissioner is correct in stating "if we come up with the right

orbital debris mitigation rules now, we can head off a potentially very costly [future] problem with far less costly precautions." This is a necessary and proper step to take at this time. Delay is undesirable.

RE: E. Steps Taken to Minimize a Significant Economic Impact on Small Entities, And Significant Alternatives Under Construction

1. Case-by-case Analysis of Debris Mitigation Plans

If a satellite operator can qualify as a "small entity" as that term is defined in the SBA rules applicable to satellite telecommunications, i.e. an entity with $11.0 million or less in annual receipts, then the FCC should proceed on a case-by-case basis in analyzing debris mitigation plans. However, it ought to be presumed that a even small entity must meet an appropriately tailored compliance threshold which meets the spirit and purpose of the proposed rules. This presumption should be clearly stated in the final rules that are adopted. The operator's license application should state the debris mitigation methods that will meet the threshold in a particular case. In the event that an operator seeks a reporting or compliance exemption, then specific reasons to rebut the presumed threshold must also be submitted.

2. Considering a Showing Concerning Direct and Effective Regulation by a Foreign Administration

It is generally sufficient for parties utilizing the processes in Section 25.137 of the FCC rules to submit evidence that the satellite system's debris mitigation plans are subject to direct and effective regulatory oversight by the satellite system's national licensing authority, and information regarding specific debris mitigation procedures should only be required in the absence of a showing of direct and effective oversight. However, "direct and effective oversight" can only be determined in those cases where the national licensing authority itself has publicly-accessible, transparent regulations. If the regulations under which a satellite system's debris mitigation plan was accepted are unavailable or not discernable by ordinary, prudent research then it may be necessary to require the satellite operator to also submit a debris mitigation plan to the FCC.

3. Post Mission Disposal of spacecraft from low-Earth orbit

A. Although direct retrieval is, to date, expensive and limited to a reusable vehicle, and of limited relevance to current missions, the FCC ought not dismiss the long-term possibilities of an option for direct retrieval. This is logical because space debris is, inherently, a long-term problem. It will continue to exist at a time when future technologies may make retrieval more practical and relatively inexpensive. Therefore, the FCC ought to consider a rule that promotes an economic incentive in retrieval by allowing the salvage of appropriate non-functioning U.S. national spacecraft and appropriate U.S. licensed spacecraft

by U.S. nationals.

Current international law prohibits one nation from salvaging the space objects of another nation. However, if domestic law permits, space objects may be salvaged by the same nation that placed them in space, or by its properly licensed nationals. For example, one *Westar* and two *Intelsat* satellites were directly retrieved by the space shuttle. Intelsat is a self-insurer and agreed to have their satellites retrieved. In another case, an insurance company obtained title to an Indonesian satellite, *Palapa*, by paying for its loss. It was also retrieved by the shuttle pursuant to an agreement between the company and the U.S. As a legal matter, these events provide precedents for **intra**national salvage operations. As an economic and environmental matter, promoting the legal salvage of satellites can have the additional effect of encouraging the private sector to develop salvage technologies as shuttle alternatives.

Incremental steps that can be embodied in a new rule to promote the long-term possibilities of an option for direct retrieval and which will begin to provide the foundation for **intra**national salvage operations in the future include:

1. Requiring either a license for a specific salvage mission or a space salvage operator's license to ensure U.S. compliance with international legal obligations.
2. Requiring a technological and financial assessment of an entity seeking a salvage license.
3. Designating how to determine a point in time when an owner/operator has actively or constructively abandoned a satellite, making it available for salvage.
4. Designating how to determine a point in time when liability passes from an owner/operator to a salvor.
5. Supplying guidelines for determining whether or not a satellite is an appropriate candidate for salvage. For example, including a presumption that excludes National Technical Means ("NTMs") unless there is a specific RFP authorized for a specific retrieval.

B. Under the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (Outer Space Treaty), the United States is prohibited from to appropriating space by "means of use or occupation, or by any other means."[1] As stated in the proposed rules, "use of a storage orbit leaves the space object in orbit indefinitely." The Center notes that formalizing the routine use of a storage orbit in national legislation and regulations can be construed as appropriating space by use or occupation through the means of national legislation. That the alternative to indefinite storage, "removal of the space object entirely from orbit" is, as also stated in the proposed rules, "impracticable" does not eliminate the use or occupation question.

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es in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. 6347, 610 U.N.T.S. 205 (effective Oct. 10,1967), Art. 2.

It is recommended that precedents regarding intentional, repeated, regular use of a particular orbit for a specific purpose be analyzed in relation to a codified storage orbit. For example, the International Space Station partners felt obliged to address the issue of the status of the indefinite use of a particular orbit for a specific purpose in the *Intergovernmental Agreement* that governs the use of the International Space Station. It states, "Nothing in this Agreement shall be interpreted as...constituting a basis for asserting a claim to national appropriation over outer space or over any portion of outer space."[2] Rules and regulations of the International Telecommunications Union will also be relevant here.

RE: F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

Although opinion varies regarding degree, it is a generally held view in the professional space community that commercial remote sensing of the Earth from space is becoming one of the most extensive commercial uses of space since the advent of space telecommunications. Additionally, debris, whatever its source, is a threat for all satellite applications. As such, it is important to assure that the growth of space remote sensing is consistent with orbital debris mitigation. Therefore, it would be prudent for the FCC and NOAA to formalize a procedure wherein each is informed of the other's requirements for, and enforcement of, post-mission disposal of spacecraft. Waiving disclosure of requirements without inter-agency coordination has the potential of causing an administrative gap through which debris mitigation plans can be lost.

Thank you for the opportunity to comment on the proposed FCC rules regarding orbital debris mitigation. If you have any questions regarding these comments, please feel free to contact me.

Sincerely,

Prof. Joanne Irene Gabrynowicz, J.D.
Director

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of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station, January 20, 1998, Article 2, 2. (c), International Rights and Obligations.